Amendments to the Specification

Please replace paragraph [0001] with the following rewritten paragraph [0001], in which changes are shown in mark up:

This Application claims priority under 35 U.S.C. § 119 based upon U.S. Provisional application Ser. No. 60/191,625, filed on Mar. 23, 2000, entitled ~~"METHOD AND SYSTEM FOR SECURING USER IDENTITIES AND CREATING NETWORK VIRTUAL USERS TO ENHANCE PRIVACY ON A GLOBAL COMMUNICATION",~~ "METHOD AND SYSTEM FOR SECURING USER IDENTITES AND CREATING VIRTUAL USERS TO ENHANCE PRIVACY ON A GLOBAL COMMUNICATION NETWORK," the entire disclosure of which is incorporated herein by reference. –

Please replace paragraph [0006] with the following rewritten paragraph [0006], in which changes are shown in mark up:

-- In the past few years, particularly in the last 2 years, Internet users have [[experiencing]] undergone a change in attitude. Users are awakening, one after the other, from the online anonymity dream, and into the cold reality that websites, and the entities and people that operate websites, meticulously collect user data, maintain it, manage it, and use it for many commercial purposes. All this is happening, most of the time, without the user's knowledge and without user consent. --

Please replace paragraph [0014] with the following rewritten paragraph [0014], in which changes are shown in mark up:

-- Additionally, certain types of online transactions tend to trigger privacy and anonymity concerns, for example, purchasing legal pornographic material, Internet activity relating to [[a]] sensitive medical information, or purchases and research relating to analyzing business competitors. --

Please replace paragraph [0015] with the following rewritten paragraph [0015], in which changes are shown in mark up:

-- One existing solution for Internet privacy is the use <u>of</u> a "proxy server" which links between the user's computer and websites visited by the user. The entity behind the website cannot capture the user's information; instead, the site may record only the identity of the proxy server. Internet users may subscribe to such a proxy server, such as the service available at Anonymizer.com.RTM.. It should be noted that the proxy servers such as Anonymizer.RTM. cannot guarantee its users perfect anonymity. One way in which anonymity can be compromised is through the use of "helper applications" on the Internet, for example, media viewers such as Real Player.RTM., which go around the proxy by establishing their own direct net connections. Further, the technical standards underlying the Web are constantly changing, hence potentially creating new routes around the Anonymizer.RTM.'s automatic link-rewriting mechanism. Nevertheless, research indicates that about five percent of Internet users have used or are using a proxy server to surf the Internet. It should be further noted that existing proxy ~~server~~ <u>servers</u> solution do not address the problems discussed above relating to online transactions. These solutions [[only]] do not provide a solution to the problem of websites requesting users to volunteer personal information to receive services. --

Please replace paragraph [0016] with the following rewritten paragraph [0016], in which changes are shown in mark up:

-- Another existing solution for Internet privacy is web-based e-mail. Most Internet users have some form of a web-based email account. This free service is offered by numerous providers, for example Hotmail.RTM., available from Microsoft, Inc. At a first glance, creating and using web-based email seems like a good solution, enabling the user to create a pseudo-anonymous e-mail address which may be used for communicating with entities that are not within the user's immediate circle of acquaintances, such as online merchants. However, web-based email has many disadvantages. The user interface is often less comfortable, compared to that of a regular POP-based email client. Further, there are strict limitations on the mailbox and attachments sizes. Additionally, web-based service is clearly not anonymous, because

the email header still contains the IP address of the sender. Further, web-based e-mail addresses are known to be the most common target for "junk" or "spam" e-mail, because various methods enable spammers to collect such email addresses and flood them with junk e-mail. Further, security breaches are common with web-based e-mail servers enable hackers to intercept and use other people's web-based e-mail accounts. Thus, many users periodically open new web-based e-mail accounts to avoid security breaches and "spam", resulting in a tedious and inconvenient use of those accounts. Further, web-based e-mail [[do]] services do not enable anonymous transactions on the Internet. Finally, web-based e-mail accounts do not provide a solution for the problem of websites requesting users to volunteer personal information to receive services. --

Please replace paragraph [0032] with the following rewritten paragraph [0032], in which changes are shown in mark up:

-- For users whose mailing addresses are disclosed to an organ of the AVPP, as part of the information needed to establish a transaction account, the AVPP may include a shipping division, which may be part of the real world sub-system of the AVPP. Alternatively, the AVPP may contract with a trusted third party to handle the shipping of goods from Internet merchants to AVPP users as follows. Each virtual user's fictional shipping address may include a shipping code identifying the virtual user as a member of the AVPP system. Before shipping the goods, the third party shipper may obtain the real user's shipping address from an organ of the AVPP directly, by providing the shipping code, whereby the real user address is not communicated over the Internet. The shipping organization receives the goods to be shipped from a dispatch site of the Internet merchant and delivers the goods to the real user. In some embodiments, the virtual users users' fictional mailing address may include an indication of a geographical vicinity of the real user address, so that the Internet merchant may be able to efficiently allocate a proper dispatch site for the goods, to minimize shipping time and costs, yet without having access to the complete address of the user. --

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Please replace paragraph [0033] with the following rewritten paragraph [0033], in which changes are shown in mark up:

-- As described above, payments by a virtual personality over the Internet may be in the form of [[a]] virtual credit/debit cards registered to the virtual personality. This may be implemented using a real credit card number that may be issued to the AVPP by an existing credit card company. The AVPP may be directly responsible for the payment of its virtual users' credit card bills. For billing and credit card authentication purposes, each virtual credit card of an AVPP user may be registered with the address of the AVPP and the fictional identification information assigned to each user. Payment made by the AVPP on behalf of its users may be deducted from the corresponding real users' transaction accounts within the AVPP, and payments received by the AVPP on behalf of its users may be added to the corresponding real users' transaction accounts. --

Please replace paragraph [0040] with the following rewritten paragraph [0040], in which changes are shown in mark up:

-- FIG. 2 is a schematic block diagram ~~of a~~ illustrating the flow of funds through an AVPP system in accordance with an embodiment of the invention, operating over a global computer communication network;

Please replace paragraph [0044] with the following rewritten paragraph [0044], in which changes are shown in mark up:

-- The AVPP in accordance with the invention implements fundamental and revered separation between a user's real identity and the user's Internet identity (i.e., the virtual personality), whereby no information linked to the real identity [[is]] ever <u>need</u> <u>be</u> communicated via the Internet. According to this concept, the AVPP preferably consists of two separate sub-systems, namely, a virtual world system and a real world system. The two sub-systems do not communicate with each other via conventional Internet connections. This concept is depicted in ~~FIGS.~~ <u>FIG.</u> 1, which schematically illustrates an overview of an AVPP system in accordance with an embodiment of the

present invention, operating in conjunction with a world wide computer communication system 12, such as the Internet, also referred to herein as the "Web".--

Please replace paragraph [0046] with the following rewritten paragraph [0046], in which changes are shown in mark up:

-- In accordance with an embodiment of the invention, as described in detail below, users 10 and 11 may access Internet 12 using virtual personalities 110 and 111 which are assigned to users 10 and 11, respectively, to engage in various activities. For example, users 10 and 11 may purchase goods from a website of an electronic retailer ("e-tailer") 14, participate in chat rooms or games 16, surf the Web using a search engine 18, as is known in the art, or interact with other Internet users 26. In accordance with the invention, virtual users during their Internet activity, users 10 and 11 may be exposed during their Internet activity to an intruder 20, defined broadly herein as an entity that may collect and use information about users 10 or 11 for purposes not authorized by users 10 and 11, such as for consumer targeting or for any other purpose that may be considered an invasion of the privacy of users 10 and 11. --

Please replace paragraph [0048] with the following rewritten paragraph [0048], in which changes are shown in mark up:

-- In contrast to real user 10, the identity of real user 11 is disclosed to the AVPP real world site 22, or to [[an]] organs of AVPP real world site 22, as described below. The identity may be disclosed using conventional methods, [[of]] for example, in person, by mail, by phone, by direct connection though a telephone line, or even through a secure connection over the Internet, such as a secure socket layer ("SSL") connection, as is known in the art, depending on the level of comfort of the user in using any of those conventional methods. The AVPP real world site 22 may then provide user 11 with a virtual user name and virtual user information, which may include an identification code and other information, which may be later used over the Internet to authenticate the transactions of user 11. This information may be attached to the virtual user 111 created by [[ort]] or assigned to user 11. Once real user 11 has been authenticated at an Internet site of the AVPP, such as AVPP Internet site 24, which site may be accessed via the Internet using conventional Internet access tools, real

user 11 may edit and/or expand the content of the virtual user 111 and/or add more information related to virtual user 111, which additional or edited information may subsequently used to authenticate user 11. In this constellation, the crucial linking between the identity of real user 11 and the virtual user 111 is known only to the user and to the AVPP real world site 22, i.e., off the Internet. The AVPP Internet site 24 communicates only with the virtual user and does not store any information that may be traced back to the real user. In this manner, the real information relating to user 11 is prevented from being compromised to any other entities on the Internet, even if security mechanisms of the AVPP Internet site 24 fail. This is fundamentally different from prior art systems in which user information is secured from the Internet only by electronic means, such as encryption and communication through secure servers. In the present system, real information about real user 11 is stored only in an internal database of the AVPP real world site 22, and is not communicated even to the AVPP Internet site 24. All communication between the AVPP real world site 22 and the AVPP Internet site 24, relating to the activity of real user 11, is based solely on the information included in the virtual entity 111. As explained below, the AVPP real world site and the AVPP Internet site may not be separated physically, for example, they may be located on separate servers of the same system, as long as the linking between real user 11 and virtual user 111 is stored separately and is prevented from being communicated over the Internet. --

Please replace paragraph [0049] with the following rewritten paragraph [0049], in which changes are shown in mark up:

-- It is appreciated, however, that the identity of user 11 may not be completely "sealed" from the Internet, in the sense that a person within the AVPP real world site organization may intentionally, or by an act of negligence, compromise a user's identity and communicate such identity over Internet. However, a user who is concerned about privacy to such an extent, that the user is reluctant to rely [[even]] on the integrity of the AVPP system personnel, has the alternative option of subscribing to the AVPP system [[in]] with total anonymity, using the model described above with reference to real user 10. --

Please replace paragraph [0051] with the following rewritten paragraph [0051], in which changes are shown in mark up:

-- To secure the financial interests of the AVPP and its users, against Internet security breaches such as credit card theft, the AVPP system may incorporate information security solutions as are known in the art. Thus, the AVPP of the present invention does not obviate the need to physically secure the transfer of information on the Internet. However, the ~~added value of the~~ AVPP system and method ~~is in~~ further protecting user privacy on the Internet by creating a fundamental and revered separation between the virtual personalities and their corresponding real life identities, whereby real user identities are not compromised even when Internet security fails. This added value is expected to become increasingly important as the Internet grows in size and sophistication. --

Please replace paragraph [0053] with the following rewritten paragraph [0053], in which changes are shown in mark up:

-- Most transactions on the Internet do ~~not,~~ inherently~~,~~ require identification of the real entity making the transaction, such as the entity's mailing address. For example, "soft products", such as downloading software, music or video, "print-your-own" products, such as uniquely bar-coded stamps or movie tickets, etc., or even hotel reservations. Such products do not require additional treatment by the AVPP once the anonymous payment method described above is implemented. However, in preferred embodiments, the AVPP also accommodates transactions that inherently require a mailing address, for example, purchasing products that [[must]] may be shipped to the customer. To accommodate such transactions, the AVPP real world site 22 may establish physical mailboxes that are assigned to subscribers, under their virtual identity, and may be accessed at locations affiliated with the AVPP real world site 22. This solution may be suitable for users, such as user 10, who seek full anonymity, i.e., who communicate with the AVPP only via transfer of cash or cash equivalent. --

Please replace paragraph [0058] with the following rewritten paragraph [0058], in which changes are shown in mark up:

-- FIG. 2 schematically illustrates the flow of information and funds in an AVPP system according to an embodiment of the present invention. While FIG. 2 [[depict]] depicts one embodiment of a system which may perform the method of the present invention, other systems and arrangements of components may be used to perform such a method, and the system of the present invention may incorporate other systems and/or perform modified methods. The AVPP system of FIG. 2 includes the AVPP real world site 22 and the AVPP Internet site 24. The AVPP real world site includes a fund collection site 28, a shipping processing division 34, a real user versus virtual user information database ("RU/VU") 32 and a virtual user information database 36, all of which elements are discussed in more detail below. Both the shipping processing division 34 and the funds collection site 28 may communicate with the RU/VU database 32, to retrieve certain information therefrom and to supply other information [[thereto,]] thereto. As explained below, the shipping processing division operate or be associated with a shipping company, such as FedEx.RTM., to provide the shipping company with shipping address information upon a specific request. Such request may include a code identifying a virtual user of the AVPP, and/or a virtual shipping address of the virtual user, which information may be linked to a corresponding real user shipping address within RU/VU database, as explained below. Thus, upon a specific request from the shipping company, the shipping retrieves a real user shipping address from the RU/VU database 32 corresponding to the virtual user information or other code included in the request. This mechanism enables shipping of goods to the real user without communicating the real user shipping address over the Internet, as demonstrated by examples below. --

Please replace paragraph [0061] with the following rewritten paragraph [0061], in which changes are shown in mark up:

-- The funds identification code, may be used by user 30 to access AVPP Internet site 24, which may include an organization and/or a collection of computer hardware and/or software enabling anonymous use of services provided over the Internet, such

as purchasing products or services, participating in social activities such as chat groups, or searching the World Wide Web ("Web") using a search engine, or any other activities as are known in the art. Preferably, the AVPP Real world site 22 and the AVPP Internet site 24 are physically and, in some embodiments, organizationally distinct entities, as described above with reference to [[Fir]] FIG. 1. The AVPP real world site 22 may connect directly with a user to perform functions that require knowledge of the true identity of the user, such as account set up and maintenance. The AVPP Internet site interacts with the user via the Internet to perform functions requiring anonymity, such as surfing, purchasing goods, research, participating in chat rooms, etc., as described above with reference to FIG. 1. --

Please replace paragraph [0063] with the following rewritten paragraph [0063], in which changes are shown in mark up:

-- The virtual user entries 310 and 311 preferably include virtual profiles of users 10 and 11, respectively, as well as the funds ID code of each user, or any information that may be required in order to authenticate the Internet transactions and other activities of users 10 and 11 on the Internet. This information is not related to the identity of users 10 and 11 and, in some embodiments of the invention, this information may be altered periodically by the AVPP system to avoid fraud. Each virtual user entry preferably also includes a virtual transaction account number and an account balance, e.g., in U.S. Dollars, for the purpose of processing the virtual transaction accounts of the users, as described above with reference to FIG. 1. The virtual information may also include a virtual e-mail address, and a virtual user access ID ("username") and virtual user password. The virtual user profiles may further include information that may be added by the users 10 and 11 at the AVPP Internet site 24 to reflect the personalities each user wishes to present on the Internet, for the purpose of their activity as virtual users 110 and 111, respectively. For example, a virtual entry may include imaginary personality characteristics, physical characteristics, an imaginary profession and preferences, etc., as described below with reference to virtual personality database 40 of FIG. 4. However, any such additional information that is not required [[necessary]] for the process of authenticating the transactions of virtual users 110 and 11 may be omitted from the virtual user entries.

Such additional information may still be included in the virtual personality profiles of users 110 and 111 in the virtual personality database 40, as described below. Each real user entry in the RU/VU database 32 is preferably linked to a corresponding virtual user entry, for example, entry 210 is preferably linked to entry 310 and entry 211 is linked preferably to entry 311, using a reference or pointer as is known in the art. This linking is the crucial linking between real users and virtual users that the present invention seeks to protect from undesired disclosure over the Internet. --

Please replace paragraph [0067] with the following rewritten paragraph [0067], in which changes are shown in mark up:

-- It should be noted that any reference above or below to the separation between AVPP real world site 22 and AVPP Internet site 24 should be understood to mean separation between organs of the AVPP system at which real user information may be stored and organs of the AVPP system that may communicate with the Internet and should, therefore, not have online access to real user information. The physical location of each element of the AVPP system is not significant. For example, in some embodiments of the invention, the virtual user database may be omitted and other arrangements may be made to safely update information between RU/VU 32 and virtual personality database 40 of AVPP Internet, such as [[the]] applying the above described switching mechanisms to allow communication between databases 40 and 36 only when communication between database 40 and AVPP Web server 38 is halted. --

Please replace paragraph [0072] with the following rewritten paragraph [0072], in which changes are shown in mark up:

-- The virtual personality editing tool 52 may include software to enable users to create visual representations of their virtual entities, in two or three dimensions, and to store such images as part of the virtual user profile, whereby each user may create a unique image to represent the virtual entity on the AVPP website or, possibly, on other websites that may be equipped with software tools for displaying such images. In some embodiments, the virtual entities may also include information corresponding to a desired voice pattern of the virtual entity, and this voice may be used for

interaction with other Internet entities, whereby one real user may be able to view the virtual entity of another real user and listen to its voice. Software tools for converting typing of words on a personal computer to audible speech from a virtual character are known in the art, and such tool may be incorporated in to the AVPP system of the present invention. The personalized home pages 54 may be useful for users who wish to host other real or virtual Internet entities in a personalized environment. In a preferred embodiment of the invention, each virtual entity may be able to interact with other virtual entities at the AVPP Internet site 24, or at personalized environments or, depending on Internet standardization, even on websites not related to the AVPP system. In such interaction, one virtual entity may transfer information from its virtual profile to another virtual entity, and vice versa, for example, using a "file transfer" tool as is known in the art. In this manner, virtual personalities may share or exchange information in the virtual world, and may get to "know" one another. Such interactions are even more meaningful when they are accompanied by a memory function. It should be appreciated that once a virtual entity in accordance with the invention is created, such virtual entity interacts on the Internet exactly like a real user and, therefore, there are essentially no limits to the type and scope of interaction available to virtual entities on the Internet. --

Please replace paragraph [0081] with the following rewritten paragraph [0081], in which changes are shown in mark up:

-- Without the information in the real user entry, 210 or 211, which is stored in the RU/VU database 32, and which corresponds to the real user, the virtual user access ID cannot be easily used to trace the identity of the user, as described in detail above. In the case of a completely anonymous user 10, ~~such as user 10,~~ no information exists in any of the databases operated by the AVPP system that be used to trace the identity of the user. Preferably, if the user desires, the virtual user information in databases 32, 36 and 40 is customizable by the user to correspond to a "personality" of the virtual user entry that the user wishes to present. For example, user 30 may choose to be "King Henry", and may provide additional information about this "make believe" character, such as virtual date of birth, virtual address, and the preferences of the "make believe" character in music, arts, science, etc., or any other information that the

AVPP Internet site may be designed to receive. Some of the information may completely fictional, and some of the information may be real, for example, user 30 may prefer to have a virtual personality similar to the real personality, yet sufficiently different to protect the user's privacy. The virtual e-mail address of user 30 may either be randomly generated by the AVPP or may be customizable by the user. In some embodiments, the user may control the appearance and even the voice of the virtual entity, as described in detail above. --

Please replace paragraph [0085] with the following rewritten paragraph [0085], in which changes are shown in mark up:

-- Reference is now made to FIG. 5, which schematically illustrates a virtual interface provided to a user upon logging on to the AVPP Internet site. The user logs on to the AVPP Internet site by presenting the virtual user access ID and virtual user access password to the AVPP Internet website. The user is then presented with an interface allowing the user to perform functions specific to the AVPP Internet site, as well as to access Internet sites. The user interface includes a border or frame area 64, which provides an interface for the user to perform functions such as maintenance of an anonymous virtual transaction account 72, accessing a virtual e-mail account 74 corresponding to the user's virtual e-mail address, editing a virtual personality profile 76 and viewing/editing an image 68 which represents the virtual personality, all of which functions are described above in detail. The border [[r]] frame area 64 surrounds an anonymous browsing area 70, in which the user may access Internet sites in an anonymous manner. For example, to access e-tailer 14, the user enters the URL corresponding to the e-tailer in a field 62 of the AVPP Internet site, the website of the e-tailer is presented in the browsing area 70, and the user may interact with the website. The virtual entity's user name, such as "King Henry", or any other information from the virtual user entry in the AVPP databases may be displayed in a specified field 66. By scrolling through entries in field 66, user 30 may choose a different virtual entity for a given session. It should be appreciated that although the present invention does require user 30 to have more than one virtual personality, user 30 may nonetheless establish more than one anonymous account with the AVPP, wherein each account may be represented by a different virtual entity. Using multiple

virtual entities, the user may play different roles on the Internet or present different personalities to different entities or in different situations, e.g., a man might pretend to be a woman, or vice versa, in a situation where a person of the opposite sex might gain a certain advantage. For example, a woman might feel more comfortable being a virtual "man" when participating in a "chat" about auto-mechanics, and a man might feel more comfortable being a virtual "woman" in a chat about cooking, or vice versa. --

Please replace paragraph [0087] with the following rewritten paragraph [0087], in which changes are shown in mark up:

-- In a typical Internet user session, using current systems and methods, a site visited by a user may request and record personal or identifying information regarding the user, such as a user's name, address, telephone numbers and e-mail [[address]] addresses. Often such information is a prerequisite for use of Internet sites, for example, a user may be required to enter an e-mail address to access an otherwise free database. According to an embodiment of the system and method of the present invention, the information a user presents to an Internet site when using the AVPP Internet site is the virtual identity stored at the virtual user entry in virtual personality database 40. This information is imaginary and cannot be traced back to real user 30 and, thus, the real user may avoid the potentially adverse repercussions of disclosing real information to an untrusted website. Further, since the virtual entity is readily available from the virtual personality database, the user does not need to spend valuable time inventing false information to submit to the website. In some preferred embodiments of the invention, the virtual entity information stored in the virtual personality database 40 may be uploaded automatically to the website requesting the information, using link 78 on the AVPP Internet site user interface. This aspect of the invention may be implemented based on existing software solutions for automatic form filing form-filling. Such software solutions exist for filling out forms automatically on many internet sites, and are designed and used for filling out correct information; however; it will be appreciated by persons skilled in the art that such software solutions are equally suitable for filling out the virtual user information in accordance with the present invention, and that such software solutions may be

incorporated into the AVPP system with only minor modifications. It should be noted that although there is more than one standard on the Internet for filling out forms, and although different websites may use different types of virtual user interface, the automatic form-filling feature of the present invention would still benefit the users in most situations. --

Please replace paragraph [0090] with the following rewritten paragraph [0090], in which changes are shown in mark up:

-- Alternatively, user 30 may wish to purchase from the e-tailer goods that require shipping, such as a book or a toaster. The user interacts with the e-tailer in a known manner, but when asked for identifying information enters identifying information corresponding to the virtual entity stored in the virtual personality database, including the virtual transaction account information and the virtual shipping address. However, the virtual entity preferably includes a correct entry for the zip code of the real user, as described above with reference to FIGS. 1 and 2. The e-tailer uses the virtual transaction ID to access the proper amount of funds. For example, in the case that the virtual transaction ID is a valid credit card number, the e-tailer charges the credit card number via known methods, the corresponding credit card company debits the credit card account, which is preferably in the name of the organization operating or associated with the AVPP Internet site. The amount of the transaction is debited to the virtual transaction account of the user in the AVPP databases, as discussed in detail above. Once the transaction has been authorized by the credit card company, and preferably also by the AVPP transaction processing system described above, the e-tailer prepares the product for shipping at the optimal dispatch site, because the e-tailer has the correct zip code for the real user's shipping address, but the e-tailor does not know who user 30 is or the destination address for the goods. The shipping company, which preferably operates or is associated with the AVPP real world site organization, as described above, identifies the shipment as being for a user of the AVPP system and sends the virtual shipping[[-]]address to the shipping processing division 34 of the AVPP real world site 22 (FIG. 2). The shipping processing division 34 retrieves the correct shipping address of the user from the real user entry in the RU/VU database, based on the virtual user shipping address sent from the shipping

company, and sends the correct shipping address back to the shipping company. The shipping company then ships the goods from the optimal dispatch site to the correct shipping address of user 30. As in the previous example, neither the exchange of funds nor the exchange of goods allows the e-tailer access to information which may identify the user. In addition, the transfer of funds and goods or services in the above manner does not allow access to the information by entities other than the e-tailer, for example, intruder 20. Further, the shipping system, which may include both the shipping division 34 of the AVPP real world site 22 and a third party shipper, does not operate over standard internet connections and, therefore, the user 30 is not exposed to a greater privacy risk than in an equivalent off-Internet shipping situation, e.g., if the goods were ordered in person at a store or over the telephone. It should be appreciated that other implementation of an anonymous or partially anonymous shipping system, for example, the provision of a physical mailbox registered to the virtual entity, as described above, are also within the scope of the present invention .--